

Rhodora

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THE VARIATIONS OF ARENARIA PEPLOIDES IN AMERICA.

M. L. FERNALD.

It has long seemed to the writer that the fleshy tufted plant of the sea-sands of New England and eastern Canada, which passes with us as *Arenaria peploides* L. or, with those who prefer to separate it from *Arenaria*, as *Ammodenia peploides* (L.) Rupr., is doubtfully identical with the slender plant of northern Europe and our arctic and sub-arctic regions. In habit our plant differs strikingly from the European type but, owing to the infrequency of its fruiting upon the New England coast, the writer has been forced until the present to leave its status unsettled. Recently, however, he has collected fruiting material on beaches of the lower St. Lawrence, and this with fully mature fruit sent by Miss Mary Robinson from Nantucket shows that not only in habit, foliage, and inflorescence, but in the size of the fruit and the surface of the seed, is our plant readily distinguished from typical *A. peploides* of Linnaeus.

In fact, if compared only with the typical European *Arenaria peploides*, our plant would be called with slight hesitation a perfectly distinct endemic species; but a study of *A. peploides* from various parts of the northern hemisphere leads to the conviction that it is best treated as a circumpolar species with a number of more or less defined tendencies or varieties in different regions. In North America there are five pronounced variations of which the New England and eastern Canadian plant is the most extreme.

The Linnean *Arenaria peploides*¹ of northern Europe is a small plant with comparatively slender, though fleshy, procumbent, rather

¹ L. Sp. Pl. 423 (1753).

freely branching, densely tufted stems which (in the dried plants) are 1.5–3 mm. in diameter and rising only 0.5–2 dm. above the sand. Its leaves are somewhat fleshy, ovate to elliptic, 0.5–2 cm. long; its flowers, to quote the description of Bentham and Hooker, are “few, on short pedicels, in small, leafy, terminal cymes, usually more or less unisexual”¹; its globose thick-walled capsules, “about the size of a small pea,”² are by measurement 6–8 mm. in diameter, containing few rather lustrous large dark brown seeds. This small plant with definite short cymes occurs in America, so far as known to the writer; only upon the coast of Labrador and in arctic Alaska.

On the shores of Behring Sea and the North Pacific from the Aleutian Islands south to Japan occurs an extremely large plant, coarser in all its parts than the true *Arenaria peploides*, but with well developed cymes as in the typical form. This large North Pacific plant seems to be, however, not a mere luxuriant development of *A. peploides*, but a well defined variety, for the walls of its capsules are comparatively thin and so translucent (in the dried specimens) as to show clearly the forms of the very lustrous light reddish-brown seeds. This large variety was also collected by the late Rev. A. C. Waghorne on the west coast of Newfoundland; and, in view of the known affinity of the flora of western Newfoundland and Gaspé with that of the North Pacific region, may be looked for elsewhere about the Gulf of St. Lawrence.

The common plant from north of the Straits of Belle Isle, on the coast of Labrador, seems in every way identical with the Greenland *Arenaria peploides*, var. *diffusa* Hornem.,³ which is depressed, with even more slender branches than in the European type, these often purple-tinged and very slightly if at all thickened; and which has only 1–3 flowers in the upper axils instead of definite cymes. The var. *diffusa* of Greenland and Labrador in its matted habit and slender stems superficially resembles luxuriant plants of *Stellaria humifusa* rather than the coarse rigid plant with which we are familiar farther south on the Atlantic coast or a somewhat less extreme variation which occurs on the Pacific coast from the Aleutian Islands to Washington and Japan.

This common plant of the Pacific coast from southern Alaska

¹ B. & H. Brit. Fl. ed. 7, 68 (1900).

² Syme, Engl. Bot. ii, 107 (1873).

³ Hornem, Oec. Pl. ed. 3, 501 (1821).

southward was distinguished by Hooker as *Arenaria peploides*, β . *major*¹ and it was later described by Torrey and Gray as a distinct species, *Honckenya oblongifolia*.² Hooker's description is very brief but the citation of the type from De Fuca's Straits as well as a fragment of the material preserved in the Gray Herbarium indicates that his plant is identical with that described by Torrey and Gray. *A. peploides*, var. *major* is clearly separable from true *A. peploides* with ovate leaves and well developed cymes by its thicker, more fleshy stems (in dried plants varying from 2–4 mm. in diameter), its more elongate branches with few axillary slender-pedicelled flowers, its larger leaves, and the narrower acuminate sepals.

The common plant of the Atlantic coast from the mouth of the St. Lawrence southward is even more fleshy than the Pacific coast var. *major*, the elongate, erect or strongly ascending, rigid branches ("large as a goose quill" according to William Oakes³) measuring in dried specimens 2.5–6 mm. in thickness. Its leaves are oblong or oblong-ovate, very thick and coriaceous, and scarcely narrowed at base. Its few flowers are borne in the upper axils on very short thick pedicels; its ovate sepals are obtuse or at most subacute; the thick-walled capsules 8–12 mm. in diameter; and the mature seeds dark brown, distinctly papillose and scarcely lustrous. Superficially this rigid thick-stemmed plant of the Atlantic seaboard suggests the Pacific coast *Arenaria peploides*, var. *major*, but that well distinguished plant has the thinner larger leaves narrowed at base, the flowers slender-pedicelled, and the narrowly ovate or lanceolate sepals acuminate.

At first thought one is surprised that those keen-eyed observers of our flora, Michaux and Pursh, did not point out the striking dissimilarity of our plant and the true *Arenaria peploides* with which they must have had some experience in Europe; but apparently neither of them had much familiarity with the coastal sands of the north-eastern states and Canada. Michaux does not mention *A. peploides*, and Pursh knew it as an American plant only from a Labrador specimen in the Banksian herbarium.⁴ In 1818 Nuttall listed *A. peploides* in his Genera,⁵ as growing "on the sea-coast," and took up separately

¹ Fl. Bor.-Am. i. 102 (1830).

² T. & G. Fl. i. 176 (1838).

³ Oakes's manuscript notes in Gray Herbarium.

⁴ Pursh, Fl. i. 317 (1814).

⁵ Nutt. Gen. i. 290 (1818).

the problematical *Holosteum succulentum* of Linnaeus,¹ saying of it "Probably nothing more than *Arenaria peploides*, which grows on the sea-coast of New-Jersey, as this *Holosteum* cannot now be found."

In 1824, Jacob Bigelow published a good account of our plant (as *A. peploides*) from sandy beaches "particularly at Plumb island, near Newburyport where it forms large crowded tufts resembling islets;"³ and in the same year Torrey⁴ described it clearly from New Jersey, Long Island, and Massachusetts, likewise as *A. peploides*. In 1836 Rafinesque, treating this section of *Arenaria* as a genus, *Adenarium*, considered it as having two species:

"1. *A. [denarium] peploides*, Raf. *Arenaria*, do. L. Suffruticose, leaves fleshy ovate acute subserrate.—Europe, Seashore, seen dry.

"2. *A. Maritimum* Raf.. *Holosteum succulentum* L. *Arenaria peploides* of Amer. botanists. Herbaceous dichotome, leaves fleshy ovate obtuse entire petals obovate — Atlantic shores of N. America from New England to New Jersey, in sand, flowers white, vernal, terminal and in forks. Seen alive. Nuttall refers to this, the American *Holosteum* of L. who must have mistaken the glands for trifid petals, but he says leaves elliptic. Figures Autikon. Ic. n. sp."⁵

There is no doubt that Rafinesque had our common representative of *Arenaria peploides*; but his reference to it (following Nuttall) of *Holosteum succulentum* L. was unfortunate, for there is strong evidence that the latter plant, which was based by Linnaeus on Colden's description of *Alsine foliis ellipticis succulentis*, could not have been an *Arenaria*.⁶ So far as a search of literature has shown the disposition of our coastal fleshy *Arenaria* by Nuttall, Bigelow, and Torrey has since passed unchallenged, except by Rafinesque. That it is clearly different from the little tufted plant of Europe with its small cyme of flowers, small capsule, and more lustrous seed, there can be no question; but in view of its close similarity on the one hand to the more northern *A. peploides*, var. *diffusa*, on the other to the Pacific coast var. *major*, it is evidently to be considered a pronounced geographic tendency or

¹ L. Sp. i. 88 (1753).

² Nutt. Gen. i. 89 (1818).

³ Bigel. Fl. Bost. ed. 2, 181 (1824).

⁴ Torr. Fl. N. and Mid. U. S. 453 (1824).

⁵ Raf. New Fl. pt. 1, 62 (1836).

⁶ In Colden's original description (Pl. Cold. Nov. 86, no. 9) the "*petala quinque, calyce minora, ad unguem bifida*" indicates, as Torrey has already suggested (Fl. N. and Mid. U. S. 159) "that this long lost species is nothing more than *STELLARIA media*, in which the flowers are frequently triandrous, and the leaves a little fleshy."

variety of a broadly distributed polar type rather than a distinct species. But since the name *maritima* has twice been used for species in the genus *Arenaria* and as a varietal designation would be quite meaningless for a local variation of a uniformly maritime¹ species, a more appropriate name is proposed for the plant now first treated as a variety.

The American variations of *Arenaria peploides* may be briefly defined as follows.

* Flowers few to many in terminal leafy cymes.

ARENARIA PEPLOIDES L. Rooting and usually much branched deep in the sand; the leafy branches of the season procumbent, 0.5–2 dm. high, usually much forked, somewhat fleshy, 1.5–3 mm. in diameter (when dry): leaves ovate or elliptic, somewhat fleshy, 0.5–2 cm. long: flowers few, on short pedicels, in small terminal leafy cymes, usually more or less unisexual; sepals 4–5 mm. long, ovate, obtuse or acutish: capsule globose, thick-walled, 6–8 mm. in diameter: seeds compressed-pyriform, 3–4 mm. long, dark brown, somewhat lustrous and rugulose.—Sp. Pl. 423 (1753); Eng. Bot. iii. t. 189 (1794); Pursh, Fl. i. 317 (1814); and subsequent Am. auth. in small part only. *Alsine peploides* Crantz, Inst. ii. 406 (1766). *Arenaria portulacea* Lam. Fl. Fr. iii. 38 (1778). *Honkenya peploides* Ehrh. Beitr. ii. 181 (1788); Reichenb. Ic. Fl. Germ. v. t. 213, fig. 3670 — as *Honkenya* (1841). *Arenaria littoralis* Salisb. Prodr. 299 (1796). *Halianthus peploides* Fries, Fl. Hall. 75 (1817). *Adenarium marina* S. F. Gray, Nat. Arr. Brit. Pl. ii. 545 (1821). *Adenarium peploides* Raf. New Fl. pt. 1, 62 (1836). *Merckia peploides* G. Don. Gen. Syst. i. 441 (1831). *Honkeneja peploides*, *a. latifolia* Fenzl in Ledeb. Fl. Ross. i. 358 (1842). *Ammadenia peploides* Rupr. in Beitr. Pfl. Russ. Reich. ii. 25 (1845).—Coastal sands of boreal regions. In America known only from Labrador and arctic Alaska.

Var. **maxima**, n. var., ramis subsimplicibus vel aliquid furcatis 1.2–3.5 dm. altis paulo succulentibus 2–4 mm. crassis; foliis late lanceolatis vel elliptico-ovatis basin versus angustatis aliquid carnosius, eis mediae partis 2–4.5 cm. longis 1–2 cm. latis; cymis multifloris; sepalis ovatis vel ovato-lanceolatis 5–7 mm. longis; capsula 7–9 mm. diametro tenui (siccitate translucenti); seminibus levibus et lucidis pallide rufo-brunneis.

Branches subsimple or slightly forked, 1.2–3.5 dm. high, slightly succulent, 2–4 mm. thick: leaves broadly lanceolate to elliptic-ovate, narrowed at base, slightly fleshy, the middle ones 2–4.5 cm. long, 1–2 cm. broad: cymes several-flowered: sepals ovate to ovate-lan-

¹ The reference in the Synoptical Flora to an imperfect specimen from Yellowstone Lake as perhaps belonging to *Arenaria peploides* was based on an immature plant which does not satisfactorily match any known form of this species.

ceolate, 5-7 mm. long: capsule 7-9 mm. in diameter, thin-walled (translucent in dried specimens): seeds smooth and lustrous, light reddish-brown.—ALEUTIAN ISLANDS, tide-margin at Nazan Bay, Atka, July 26, 1907 (*E. C. Van Dyke*, no. 237); Behring Island, July 15, 1891 (*N. Grebnitsky*, Herb. Geol. Surv. Can.): KAMTCHATKA, Ochotsk Sea, 1853-56 (*J. Small*, Herb. U. S. N. Pacific Exped.): JAPAN, near Hokodate, Hokkaido (*Albrecht*, 1861); Zenibako, June, 1883, Oshamambo, July, 1883 (*S. Takenobu*): NEWFOUNDLAND seashore, Wild Cove, July 10, 1896 (*A. C. Waghorne*).

* * Flowers few, terminal or axillary but not in distinct cymes.

Var. *DIFFUSA* Hornem. Dwarf, matted: the flaccid depressed branches scarcely fleshy, 3-20 cm. long, 1-2 mm. thick, often purpletinged: leaves ovate to elliptic, narrowed at base, slightly fleshy, 0.5-1.5 cm. long: flowers 1-3, on short slender pedicels: sepals lance-ovate, acute, 5-7 mm. long: capsules as in the typical form.—*Oec. Pl.* ed. 3, 501 (1821). *Halianthus peplodes*, var. *diffusa* Lange, *Conspect. Fl. Groenl.* pt. 1, 26 (1880). *Arenaria diffusa* Wormskj. ex Lange, *Consp. Fl. Groenl.* pt. 2, 243 (1887). *Honckenya peplodes*, a *diffusa* Kruuse, *Med. om Grönl.* xxx. 229 (1906).—Greenland and arctic America, south to the Straits of Belle Isle, Labrador.

Var. *MAJOR* Hook. Branches fleshy, subsimple to freely forked, 1-4 dm. long, 2-4 mm. thick: leaves elliptic or oblong, somewhat fleshy, narrowed at base, the middle ones 2-3.5 cm. long: flowers few, axillary, on slender often elongate (6-25 mm. long) pedicels: sepals lanceolate or lance-ovate, acute, 6-8 mm. long: capsule 9-12 mm. in diameter: seeds lustrous.—*Fl. Bor.-Am.* i. 102 (1830). *Honckenya oblongifolia* Torr. & Gray, *Fl.* i. 176 (1838). *Arenaria sitchensis* Dietr. *Syn. Pl.* ii. 1565 (1840). *Honkeneya peplodes*, β . *oblongifolia* Fenzl in Ledeb. *Fl. Ross.* i. 358 (1842). *Halianthus peplodes*, var. *oblongifolia* Hartm. *Skand. Fl.* ed. 11, 244 (1879). *Ammodenia major* Heller, *Cat. N. Am. Pl.* 4 (1898). *Alsine peplodes*, subsp. *oblongifolia* Gürke in Richter, *Pl. Eu.* ii. 265 (1899). *Ammodenia peplodes major* Piper, *Contrib. U. S. Nat. Herb.* xi. 260 (1906).—Pacific coast, from the Aleutian Islands and Kamtchatka south to Washington and Japan; said by Hartman to occur in Scandinavia.

Var. *robusta*, n. nom. Branches erect or ascending, very fleshy, simple or sparingly forked, 1.5-5 dm. high, 2.5-6 mm. thick: leaves oblong or oblong-ovate, scarcely narrowed at base, very thick and coriaceous, the middle ones 1-3 cm. long: flowers few, axillary or from the upper forks, on short (3-7 mm. long) thick pedicels: sepals ovate, obtuse or subacute: capsule thick-walled, 8-12 mm. in diameter: seeds dark brown, distinctly papillose, only slightly lustrous.—*A. peplodes* Nutt. *Gen.* i. 290 (1818); *Bigel. Fl. Bost.* ed. 2, 181 (1824); Torr. *Fl. N. and Mid. U. S.* 453 (1824); and most subsequent Am. auth. *Holosteum succulentum* Nutt. *Gen.* i. 89 (1818)

cannot be distinguished in Kamtchatka
Hulton. *Fl. Kamt.* 2: 89. 1928.

not L. Sp. Pl. i. 88 (1753). *Adenarium maritimum* Raf. New Fl. pt. 1, 62 (1836) except as to synonym *Holosteum succulentum* L. *Honkenya peploides* Gray, Gen. ii. 31, t. 110 (1849).—Atlantic coast from Saguenay Co., Quebec to New Jersey; and reported southward to Virginia.

GRAY HERBARIUM.

ANOTHER HYBRID BETWEEN A WHITE AND A BLUE VIOLET.

EZRA BRAINERD.

VIOLA CUCULLATA × *PRIMULIFOLIA*. (*V. lavandulacea* Bicknell, Torrey, iv. 130.) This hybrid I discussed briefly in RHODORA, viii. 52, remarking on its evident relationship to *V. cucullata*, and querying if the other parent might not be such a form of *V. emarginata* as I had in cultivation from Washington, D. C., with strongly decurrent base and leaf-outline of *V. primulifolia*. Soon afterward Mr. Bicknell in conversation stated that he had thought the doubtful parent might be the real white-flowered *V. primulifolia*. I replied there was no precedent for so remote a cross in *Viola*; it must be considered quite improbable. But Mr. Forbes's recent discovery of *V. Brittoniana* × *lanceolata*¹ throws a new light on the problem. A critical study of his plants leaves one in no doubt as to the correctness of his conclusions; the presence in them of stolons can be accounted for only on the hypothesis of a sexual union between a purple-flowered and a common white violet. The precedent being established, we are prepared to weigh the evidence sustaining Mr. Bicknell's opinion as to the parentage of his *V. lavandulacea*.

The marks of *V. cucullata* are indisputable, especially the long-auricled slender cleistogamous flowers, the short glabrous spurred petal, the knobbed beard on the lateral petals, and the finally acuminate leaves. The marks of *V. primulifolia* are also conspicuous, namely, — the truncate and decurrent base of the leaf, its obscurely crenulate margin, its numerous nearly parallel veins diverging from the midrib,

¹ RHODORA, xl. 14, Jan. 1909.

the narrowed base of the petals, and the sharply defined deep purple lines on the three lower petals. This last inheritance from *V. primulifolia* is found, however, only in the plants from the "type station," Woodmere, and not in those from Rosedale; and, furthermore, the *cucullata* inheritance of acuminate leaves is lacking in the Rosedale plants. But this is not an uncommon experience; the several hybrid plants from the same parent species often inherit diversely the opposed parental characters.

In the Bicknell hybrid "the pale-lilac to lavender-blue" of the flowers indicates a 'blending' of the two colors of the parent flowers; while in the Forbes hybrid the purple color of *V. Brittoniana* seems to be 'dominant' over the white of *V. lanceolata*. In leaf-outline also *V. lavandulacea* is an evident compromise between the two parents. The absolute sterility of the hybrid precludes the culture of offspring, and the evidence that might come from fruit or seeds.

In fact, the living plants themselves have apparently disappeared. Mr. Bicknell found them in two stations two or three miles apart; but both stations have been much disturbed, and he was unable last summer to find further specimens. A vigorous plant was to be seen in the Bronx Park Garden in 1905; a root of this grew well in Middlebury for two years; but in both gardens the plants have since died. The hybrid will perhaps be rediscovered in moist meadows along the coast; and if so, it may be readily multiplied by division and kept alive indefinitely.

MIDDLEBURY, VERMONT.

BRYOPHYTES OF THE MT. GREYLOCK REGION,—IV.¹

A. LE ROY ANDREWS.

THE species listed below are, except for a little material left unidentified from previous collections, the result of two trips to the mountain-summit, one in the late summer of 1904, the other on October first, 1908. Both trips were by way of the Hopper, following different branches of the Hopper Brook up to their sources near the summit.

¹ For previous notes see RHODORA IV, 29 ff., 238 ff., VI, 72 ff.

Where the fall of such brooks is greatest, in this case not far below their source, one may depend upon finding certain species of bryophytes not likely to be met with elsewhere on the mountain surface. The species not listed before are:

MUSCI.

Andreaea petrophila Ehrh. Covering a boulder in brook-bed, higher altitude. I have been unable to demonstrate the occurrence of this genus elsewhere on the mountain.

Brachythecium rutabulum (L.) B. & S. Wet bank by brook, lower altitude in Hopper.

Didymodon rigidulus Hedw. (*Barbula rigidula* Mitten). On rocks in Hopper. This species appears to be very uncommon in the eastern United States and I was for that reason inclined to regard my specimens as *Barbula gracilis* (Schleich.) Schwaegr., which is not dissimilar, and according to Dixon¹ may show similar brood-bodies in the axils of the upper leaves. Dr. G. N. Best, to whom I sent a specimen, calls my attention to the fact that the leaf-costa is not ex-current in the upper leaves as in *B. gracilis* and names it as above.

Fissidens minutulus Sulliv. On rocks (schist) of brook-beds, higher altitudes.

Homalia Jamesii Schimp. In crevices of rocks by brook-beds, higher altitude.

Hypnum montanum Wils. Rock of brook-bed, higher altitude. Fruited. Dr. Best kindly confirmed my identification of this uncommon and beautiful moss.

Hypnum stellatum Schreb. In wet place at base of mountain in Hopper.

Leskea nervosa (Schwaegr.) Myrin. On stump by carriage-road, higher altitude.

Mnium spinulosum B. & S. On decaying logs at middle altitude. Capsules not aggregated.

HEPATICAÆ.

Cephalozia bicuspidata (L.) Dumort. From decaying log by brook higher altitude.

¹ Student's Handbook of British Mosses² p. 217.

Diplophyllia taxifolia (Wahl.) Trevis. On rock, higher altitude. This species is not common on Mt. Greylock or in the vicinity.

Harpanthus scutatus (Web. f. & Mohr) Spruce. On rotten log by brook, higher altitude.

Lejeunea cavifolia (Ehrh.) Lindb. Rocks by brook, higher altitude. Uncommon on Mt. Greylock.

Lophozia marchica (Nees) Steph. Wet bank by carriage-road near summit.

Nardia hyalina (Lyell) Carringt. Rocks in brook-bed. Dr. Evans kindly named the specimen.

Riccardia sinuata (Dicks.) Trevis. Wet rocks by brook, higher altitude.

Sphenolobus exsectus (Schmid.) Steph. Rocks of brook bed, higher altitude.

Sphenolobus Michauxii (Web. f. & Mohr) Steph. Decaying log by brook, higher altitude.

ITHACA, NEW YORK.

NOTE ON OXALIS STRICTA VAR. VIRIDIFLORA.

HARLEY HARRIS BARTLETT.

Mr. Henri Hus has described¹ a green-petaled variety of *Oxalis stricta* from the vicinity of St. Louis. During the summer of 1907 this variety was found, in plenty, growing among piles of dead brush at the edge of a pine barren near Thomson, Georgia. The effect of the habitat was to make the plants long and spindling, but otherwise they could have been distinguished from the typical form of neighboring fields only by floral characters.

The petals of *Oxalis stricta* var. *viridiflora* are light green in color, obcordate, much broader than those of the typical form, and of somewhat firmer texture. They do not close after having once opened, and remain at the base of the developing fruit for several days before wilting. In the typical form the petals open in the morning and close toward mid-day. They wilt while closed, and are often borne up as

¹ Report Mo. Bot. Gard. xviii. (1907) 99.

a cap on the tip of the lengthening fruit. At the type station of *Oxalis stricta* var. *viridiflora* Mr. Hus found only a few individuals. The occurrence of the plant in greater abundance at a distant locality strongly confirms its worth as a systematic variety. Although it has doubtless had an independent origin at different places, its characters are definite and show no greater range of individual variation than do those of typical *Oxalis stricta*.

The green petals resemble sepals in the presence of chlorophyll in the sub-epidermal tissue and in the increase in number of stomata and hairs. They differ not only from sepals but also from typical yellow petals in the shape of the epidermal cells, which are prevalingly isodiametric instead of narrowly oblong. The breadth of the petals may be correlated with this character of the epidermal cells. Results of hybridization experiments with typical *Oxalis stricta* and var. *viridiflora* will be looked forward to with interest, since it is difficult to see, if it be true, as Mr. Hus believes, that var. *viridiflora* is a variation differing in only one essential character from the parent species, just how the modified shape of the epidermal cells can be interpreted as a consequence of the presence of chlorophyll, or *vice versa*. It is not as though the variation were true sepalody, for in that case the development of two instead of one whorl of sepals might be a unit character, which would be exclusive with regard to the development of petals.

According to Dr. Small's treatment of the species of *Xanthoxalis*,¹ certain species are classed into two groups, depending upon whether the longer filaments are glabrous or pubescent. *Oxalis stricta* falls in the group with glabrous filaments. Although this character does not hold perfectly in the material from Thomson, there is a sufficient difference in degree of pubescence so that a species like *Oxalis filipes*, which belongs to the group with pubescent filaments, can be very readily distinguished from *Oxalis stricta*. In var. *viridiflora*, however, the filaments are fully as pubescent as those of *Oxalis filipes*. If there should be found variations of other species of *Oxalis* parallel to *Oxalis stricta* var. *viridiflora*, this fact ought to be allowed for if the attempt is made to place them by means of Small's key.

CAMBRIDGE, MASSACHUSETTS.

¹ N. Am. Fl. xxvi. (1907) 50.

AN INLAND VARIETY OF *PROSERPINACA PALUSTRIS*.—*Proserpinaca palustris* L. as it occurs in the coastal districts of eastern America has the fruit acutely angled and with three essentially flat faces. In the interior of the continent, however, where typical *P. palustris* is at least local, there occurs a plant which is so like it in foliage-character that it has passed without question as good *P. palustris*, but which in its extreme development, as shown by plants from the Great Lake region and Missouri, has the fruits rounded and plump, with scarcely defined angles. The fruit is also slightly smaller than in the best-developed *P. palustris*, but comparison shows several of the eastern specimens in which the fruit is scarcely larger. Other specimens from the Great Lakes have the fruit definitely though not very sharply angled so that, although in its extreme development the plump-fruited plant appears quite distinct, it seems more properly treated as an inland variety rather than a species, and it may be designated

PROSERPINACA PALUSTRIS L., var. **amblyogona**, n. var., fructu subglobozo vel ellipsoideo 3.5–4.5 mm. longo 2.5–3.5 mm. crasso, angulis obtusis vel rotundatis.—ONTARIO, shore of Georgian Bay, Lake Huron, July 31, 1871 (*J. Macoun*): INDIANA, wet ditch, Roby, July 18, 1906—TYPE (*O. E. Lansing*, no. 2569): MISSOURI, swamps, Butler County, July 27, 1892 (*H. Eggert*), October 15, 1905 (*B. F. Bush*, no. 3700).—M. L. FERNALD, Gray Herbarium.

TWO INTRODUCED PLANTS.—Early last summer Mr. W. P. Rich and I, while exploring the made land at South Boston, near the water front, came across large quantities of a fleshy annual. Its general appearance was that of young *Suaeda*, and some of it was actually growing under halophytic conditions. About the middle of September I secured specimens in fruit, not fully matured. When I compared it with the true *Suaeda*s it seemed very different, nor did it agree with any of the other genera of *Chenopodiaceae* described in the Manuals.

Dr. B. L. Robinson of the Gray Herbarium has identified it for me as *Bassia hirsuta* (L.) Aschers. Its synonymy shows that at one time or another it has been placed in several different genera of the family. It is easily distinguished from *Suaeda* by its pubescence, and its ovoid axillary fruit. It is especially interesting to find a European plant adapting itself so readily to halophytic conditions in the New World. So far as I know, this is its first appearance here.

IN RHODORA XI, 83. 1909, Prof. K. M. Wiegand reports *Bromus inermis* Leys. from Needham, Massachusetts, and also from Ithaca, New York. I collected some specimens of this introduced grass from a small roadside station near the golf links, at Hyannisport, July 15, 1905.—C. H. KNOWLTON, Boston.

AN INTERESTING ADDITION TO THE FLORA OF NEW JERSEY.—Along the eastern shore of Barnegat Bay south of Seaside Park, Ocean Co., New Jersey, the usual mud flats are not much in evidence and vegetation hugs the tide line very closely.

Associated with such characteristic plants as *Chenopodium album* L., *Atriplex patula* L., var. *hastata* Gray, *Polygonum exsertum* Small, *Cyperus esculentus* L. and *Salsola Kali* L. the writer last fall found a plant having some of the characters of a *Suaeda* but with apparent differences that were puzzling. Through the courtesy of Prof. M. L. Fernald the plant has been identified with a common European species, *Bassia hirsuta* (L.) Aschers.

It seems to be restricted to a narrow belt along the Bay shore and in the late summer and fall assumes a spreading and very much branched habit. In this locality the fruit is not ripe until the latter part of September when the plants are more or less covered with a mat of *Zostera marina* L. cast up by the combined action of wind and tide.—EDWIN B. BARTRAM, Wayne, Pennsylvania.

ANOTHER MUSHROOM BOOK.—Mr. M. E. Hard, a school superintendent of the middle west, has published an illustrated book on mushrooms,¹ the purchase of which is now being urged upon the public of New England. As the work comes among us with much heralding and insistent claim to merit, some notice of its probable value and serviceableness to amateurs of mushrooms is justifiable in this journal. It may be said at once that as a popular book it will prove helpful, first because it contains a large number of descriptions convenient to have between the covers of one book, and second because

¹ The Mushroom, Edible and Otherwise—by M. E. Hard, M. A., Superintendent of Public Instruction, Kirkwood, Missouri. The Mushroom Publishing Company, Columbus, Ohio, 1908. Quarto, 609 pages, 505 figures.

it presents an abundance (505) of photographs, nearly all life-size, which present, at first sight, a good appearance. When this has been said there is little more to say in commendation; yet it may be added that the publishers have done their part well, for the paper, and press-work leave little to be desired. The book appears fairly compendious. The inquisitive mushroom hunter, impatient to tag his finds, has here a larger number of names to choose from than in other popular works (barring McIlvaine's, perhaps), and will probably succeed to his satisfaction in selecting a label two times out of three for the particular toadstool in hand. He will not be heard to say quite so often: "I can't find it in the book." Whether his toadstool and his label will really belong together is quite another matter, which cannot greatly concern him, for in this pursuit ignorance (except of fatally poisonous sorts) is truly bliss, and greater knowledge — to be avoided by complacent self-respect — brings only greater discontent.

Perhaps it would be wrong to say that complacency is a characteristic of the book, for the impression conveyed at the opening by the full-page portrait of the author (somewhat reduced from life — the work is only a small quarto) is tempered by a deprecatory introduction by the late W. A. Kellerman, and by a modest preface. From the introduction we learn, with a sense of the fitness of the verb, that the author "has meddled for years with the various kinds" of mushrooms "which are edible and otherwise," and that the resultant inevitable desire to publish is only of recent growth, fostered, we infer, by too kind and too laudatory friends; in the preface and in the first chapter, on "Why Study Mushrooms," we are told from what simple, natural beginnings the impulse grew. Early botanical studies under Dr. Nelson, a deep-seated love of nature, the sight of the children of recent Bohemian immigrants to Ohio gathering mushrooms with blind, unerring instinct in a new land, awakened in the author a desire which developed a hobby, and finally the unrestrainable ambition to smooth and illuminate the path of his stumbling, groping countrymen. In this he says he follows the example of certain "ministers of the gospel . . . famous in the mycological world, . . . Rev. Lewis Schweinitz of Bethlehem, Pa.; Rev. M. J. Berkeley and Rev. John Stevenson of England. Their influence for good and helpfulness to their fellowmen will be lasting." The heart, we see, as well as the head, is enlisted in the work; shall we say also the yearning to be ranked among the world's benefactors and to fill a niche in the Hall of Fame?

If the last suggestion is true, it is a pity that the author's desire — a worthy one, all will agree — should not have found him better equipped, for we need a good book on mushrooms, such a book as no competent American authority has yet had confidence to prepare. The demand from the public is real, and growing stronger, and is no longer satisfied by a partial response to it such as we find in the Reports of the New York State Botanist, in Government Bulletins, or in Prof. Atkinson's deservedly popular book. While we wait for an American Fries or Gillet to do for the United States something better than they did for Sweden or for France, the opportunity for cheaply earned gratitude and a passing renown lies open to any one who has learned a few names, copied a few descriptions, assembled a few pictures, and found a publisher who sees that there is a market for such a compilation.

It is hardly worth while to say much in detail of Mr. Hard's performance. He has undoubtedly done his best, with much labor, earnestness, and enthusiasm. But it is not Mr. Hard's best that we want. His failure, for instance, to provide keys in the genera where species are numerous, and even to arrange those species he selects in the order of relationship, shows a fundamental lack of capacity for making a book of this kind. Thirty-seven *Boleti*, for example, out of the hundred or more known in the United States, are thrown together hap-hazard. As a result, *Boletus alveolatus*, B. & C., and *Boletus Frostii*, Russell, thought by some to be identical, and, at any rate, indistinguishable by an amateur, are placed 14 pages apart. *B. edulis*, Bull, is separated from its variety, *clavipes*, Pk., by three unrelated species.

His attempt to give an English name to every species, and to give the derivation of the Latin name leads to some infelicities, as "The stemmed-massed *Marasmius*" (*M. cohaerens*, p. 40); "*Androsaceus* means an unidentified sea-plant or zoophyte" (p. 138); "*Marasmius* is a Greek participle" (p. 136); "*Galericulata*, a small peaked cap" (p. 120); "*Ditopoda* is from two Greek words, *di-totos*, living in two places (?), and *pus* or *poda*, foot" (p. 99).

To return to the photographs, which the writer was inclined to accept with favor, it must be said that closer examination shows them in many cases to be below the standard. In saying this the reviewer feels bound to remark that his eyes were opened to the defects of the pictures by a friend who has been engaged for many years in painstaking efforts to perfect the pictorial record of our fleshy fungy, and

who consequently knows better what to look for and what to miss. A word may be said, too, in general in regard to the truth of the photographic record. Leaving out of account the loss of color, the reduction of everything to terms of black and white, we inevitably find an alteration of values, particularly, for instance, in the yellows and violets. With the best that the photographer can do, then, his *Amanita caesarea*, and some of his yellow *Pholiotas* are bound to be almost unrecognizably blackened, and his *Cortinarius violaceus* and other similar species have all true likeness washed out of them.

Some of Mr. Hard's photographs suffer from other causes. Too frequently, as he mentions in certain instances, his material was not in good condition, having, perhaps, been received from a distance (Nos. 63 and 173, from Boston), or having been poorly selected, (No. 112). Many suffer from poor illumination or from indistinctness. It is to be regretted that the exigencies of publication demand the reproduction of anything but the best, such as no. 142 (from Prof. Atkinson), and numbers from C. G. Lloyd. The excellence of these, and of a few of the author's own, bring up the average. But, all in all they are disappointing to the trained eye. One, at least, no. 163, is so good as to show that it does not deserve the name assigned to it, that of *Hygrophorus pratensis*.

H. W.

THE ANNUAL FIELD MEETING OF THE VERMONT BOTANICAL AND BIRD CLUBS will be held Tuesday and Wednesday, July 6 and 7, 1909, at some point on or near the shores of Lake Champlain easily accessible from Burlington. Members desiring to attend should apply to Dr. H. F. Perkins, University of Vermont, Burlington, Vermont, for the circular giving details as to the plans.

Vol. 11, no. 125, including pages 85 to 108, was issued 4 May, 1909.

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